

In the Abstract:

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ABSTRACT

~~The present invention relates to a~~ A light-waveform measuring device and its measuring method, ~~include a complex-refractive-index measuring device and its measuring method,~~ and a computer-program recording medium having programs for the same stored therein. ~~It is an object of the present invention to measure a~~ An electric field of an electromagnetic wave, ~~in a light region having wavelengths smaller than those of electromagnetic waves in a near-infrared region, is measured, and output time-varying waveforms thereof are outputted.~~ It is also an object of the present invention to enable easily obtaining a complex refractive index of a material, on the basis of the result of measurement of the electric field waveform of light. ~~The present invention comprises~~ gGate-pulse-light generating means, measurement-light generating means and light-detecting means for detecting measurement light, are included, ~~wherein both of gate pulse light and measurement light are coherent lights,~~ t The measurement light is coherent light having a wavelength smaller than those of a near-infrared region, ~~t The gate pulse light is coherent light with~~ has a pulse width smaller than a period of the measurement light, ~~the measurement light and the gate pulse light are directed to the light detecting means to generate carriers therein,~~ aA physical quantity, based on the carriers generated from the measurement light and the gate pulse light is measured, ~~and an electric field of the measurement light is measured on the basis of the physical quantity.~~